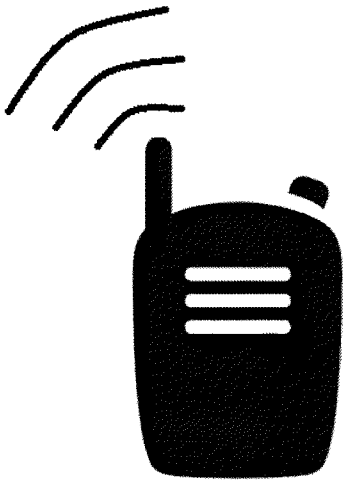
Sunnyvale Department of Public Safety

Emergency Responder Radio Coverage Systems



Radio System Installed

Code and Policy Requirements

November 10, 2014

Fire Prevention Unit | 505 W. Olive Ave. Suite 150 | Sunnyvale, CA 94086 | 408.730.7212 | FirePrevention@sunnyvale.ca.gov

SECTION 510 - EMERGENCY RESPONDER RADIO COVERAGE SYSTEMS

510.1 Emergency responder radio coverage in new buildings. *Approved* radio coverage for emergency responders shall be provided within all buildings meeting any one of the following conditions:

1. There are more than 3 *stories above grade plane* (as defined by the Building Code Section 202);
2. The total building area is 30,000 square feet or more;
3. The total *basement* area is 5,000 square feet or more;
4. The building is equipped with a solar photovoltaic system; or
5. Radio coverage signal strength levels are not consistent with the minimum levels set forth in Section 510.4.1.

The radio coverage system shall be installed and maintained in accordance with Sections 510.4 through 510.7 of this code and with the applicable provisions of NFPA 72, National Fire Alarm and Signaling Code.

The coverage shall be ((~~All new buildings shall have approved radio coverage for emergency responders within the building~~)) based upon the existing coverage levels of the public safety communication systems of the jurisdiction at the exterior of the building. This section shall not require improvement of the existing public safety communication systems.

Exceptions:

1. Where *approved* by the ((~~building official and the~~)) *fire code official*, a wired communication system in accordance with Section 907.2.13.2 shall be permitted to be installed or maintained in lieu of an *approved* radio coverage system.
((~~2. Where it is determined by the fire code official that the radio coverage system is not needed~~.))
2. Buildings and areas of buildings that have minimum radio coverage signal strength levels of the Silicon Valley Regional Interoperability Authority (SVRIA) P25 Phase 2 700 MHz Digital Trunked Radio System within the building in accordance with Section 510.4.1 without the use of an indoor radio coverage system.
3. In facilities where emergency responder radio coverage is required and such systems, components or equipment required could have a negative impact on the normal operations of that facility, the *fire code official* shall have the authority to accept an automatically activated emergency responder radio coverage system.
4. One and two family dwellings and townhouses.

510.1.1 Obstruction by new buildings. When in the opinion of the *fire code official*, the construction of a new building obstructs line of sight emergency radio communications to existing buildings or other locations, the developer of the new building shall correct the degraded radio coverage as necessary to restore communications capabilities in accordance with Section 510 of this code.

510.2 Emergency responder radio coverage in existing buildings. Existing buildings shall be provided with approved radio coverage for emergency responders as required in Chapter 11.

510.3 Permit required. A construction permit for the installation of or modification to emergency responder radio coverage systems and related equipment is required as specified in Section 105.7.5. Maintenance performed in accordance with this code is not considered a modification and does not require a permit.

An operational permit is required to maintain an emergency responder radio coverage system as specified in Section 105.6.

510.4 Technical requirements. Systems, components, and equipment required to provide emergency responder radio coverage systems shall comply with Section 510.4.1 through 510.4.2.5.

510.4.1 Radio signal strength. The building shall be considered to have acceptable emergency responder radio coverage when signal strength measurements in 90((~~95~~)) percent of all areas on each floor of the building meet the signal strength requirements in Sections 510.4.1.1 and 510.4.1.2.

Exception: Critical areas, such as the *fire command center*(s), the fire pump room(s), *interior exit stairways, exit passageways*, elevator lobbies, standpipe cabinets, rescue air filling stations, sprinkler sectional valve locations, and other areas required by the *fire code official*, shall be provided with 99 percent floor area radio coverage.

510.4.1.1 Minimum signal strength into the building. A minimum signal strength of -95 dBm shall be receivable in 90% of the area of each floor within the building when transmitted from the Silicon Valley Regional Interoperability Authority (SVRIA) P25 Phase 2 700 MHz Digital Trunked Radio System.

510.4.1.2 Minimum signal strength out of the building. A minimum signal strength of -95 dBm shall be received by the ((~~agency's radio system~~))Silicon Valley Regional Interoperability Authority (SVRIA) P25 Phase 2 700 MHz Digital Trunked Radio System when transmitted from 90% of the area of each floor within the building.

510.4.1.3 Delivered audio quality. The radio coverage system shall provide a minimum delivered audio quality of level 3.4 (DAQ "3.4") on each floor of the building or structure. DAQ 3.4 constitutes audio quality that makes speech understandable with repetition only rarely required with some noise and distortion.

510.4.1.4 Supported frequencies. A frequency range supported ***from*** the Silicon Valley Regional Interoperability Authority (SVRIA) P25 Phase 2 700 MHz Digital Trunked Radio System as determined by the *fire code official* (base transmitter frequencies), and a frequency range supported ***to*** the Silicon Valley Regional Interoperability Authority (SVRIA) P25 Phase 2 700 MHz Digital Trunked Radio System as determined by the *fire code official* (radio field transmit frequencies) on each floor of the building.

510.4.1.5 Building conduit. All new buildings shall be constructed with not less than a two-inch (2") conduit having a minimum one-hour fire resistive rating installed between the first floor or the bottom subterranean floor, as applicable, and said conduit shall extend along the center of the building to the roof. At each floor and the roof, an opening shall be made to allow easy access to the conduit from the ceiling. Access in either the form of a drop ceiling or conduit shall be made along hallways and through firewalls. All floors of the subterranean parking garages shall have a similar conduit installation. Cable other than radio cable is allowed to comingle with the radio cable in the conduit provided it will not interfere with the radio cable. Plenum-rated coaxial cable is allowed to be used for horizontal runs between the conduit and the antennas.

510.4.2 System design. The emergency responder radio coverage system shall be designed in accordance with Sections 510.4.2.1 through 510.4.2.5.

510.4.2.1 Amplification systems allowed. Buildings and structures which cannot support the required level of radio coverage shall be equipped with a radiating cable system, a distributed antenna system with Federal Communications Commission (FCC)-certified, public-safety grade signal boosters (amplifiers) designed for the bands and frequencies specified by the *fire code official*, or other system allowed by the *fire code official* in order to achieve the required adequate radio coverage.

510.4.2.2 Technical criteria. The *fire code official* shall ((~~maintain a document providing the specific technical information and requirements for the emergency responder radio coverage system. This document shall contain, but not be limited to,~~)) provide the various frequencies required, the location of radio sites, effective radiated power of radio sites, and other supporting technical information upon request by the building owner or owner's representative.

Points of Information:

1. The Public Safety radio system, extending from the head-end amplifier to the distributed antennas, is not allowed to be combined with other DAS systems installed in the building.

2. The Public Safety radio system equipment shall have the capacity to monitor a minimum of 24 channels in the 700/800 MHz band. See Section 510.7.

3. Where fiber distribution systems are used to extend the Public Safety radio system throughout the building or to other buildings, the horizontal fiber runs shall be enclosed in conduit meeting at least the building conduit requirements in Section 510.4.1.5.

510.4.2.3 Power supply sources. ((~~**Secondary power.**~~)) Emergency responder radio coverage systems shall be provided with ((~~an approved secondary source of power~~)) at least two independent and reliable power supply sources conforming to NFPA 72 and the Electrical Code, one primary and one secondary. The secondary power supply shall be capable of operating the emergency responder radio coverage system for a period of at least 24 hours. When primary power is lost, the power supply to the emergency responder radio coverage system shall automatically transfer to the secondary power supply.

510.4.2.4 Signal booster requirements. If used, signal boosters shall meet the following requirements:

1. All signal booster components shall be contained in a National Electrical Manufacturer's Association (NEMA) 4-type waterproof cabinet or other *approved* enclosure.

2. Battery systems used for the emergency power source shall be contained in a NEMA 4-type waterproof cabinet.
   Exception: Listed battery systems that are contained in integrated battery cabinets.

3. The signal booster system and ((~~battery system~~))power supply(ies) shall be electrically supervised and monitored by a supervisory service ((~~or when approved by the fire code~~

~~official, shall sound an audible signal at a constantly attended location~~)) and shall provide automatic supervisory and trouble signals for failed primary system, failed secondary system, and backup capacity at 75% that are annunciated by the fire alarm system in accordance with NFPA 72.

Exception: For buildings without a fire alarm system, a dedicated monitoring panel in accordance with NFPA 72 shall be provided to annunciate automatic supervisory and trouble signals for the signal booster system and power supply(ies) and sound an audible signal at a constantly attended location.

4. Equipment shall have FCC certification prior to installation.

5. Unless otherwise approved by the *fire code official*, only channelized signal boosters shall be permitted.

510.4.2.5 Additional frequencies and change of frequencies. The ((~~emergency responder radio coverage system shall be~~)) distributed antenna system shall be capable of providing indoor coverage for public safety radio systems operating in the VHF and 700/800MHz bands and future 700MHz broadband and shall also be capable of modification or expansion in the event frequency changes are required by the FCC or additional frequencies are made available by the FCC.

Point of Information:

Buildings that have an anticipated occupancy date after July 1, 2014 are not required to install equipment to support radio systems operating in the VHF bands. However, the radio system installed must be capable of being expanded in the future to accommodate a VHF system.

510.5 Installation requirements. The installation of the public safety radio coverage system shall be in accordance with Sections 510.5.1 through 510.5.((4))6.

510.5.1 Approval prior to installation. Amplification systems capable of operating on frequencies licensed to any public safety agency by the FCC shall not be installed without prior coordination and approval of the *fire code official*.

510.5.2 Minimum qualifications of personnel. The minimum qualifications of the system designer, ~~and~~ lead installation personnel and personnel conducting radio system tests shall include possession of:

1. A valid FCC-issued general radio operators license; and
2. Certification of in-building system training issued by ((~~a nationally recognized organization, school or a certificate issued by~~))
   a. Associated Public Safety Communications Officials (APCO)
   b. National Association of Business Education Radio (NABER)
   c. Personal Communications Industry Association (PCIA) or,
   d. the manufacturer of the equipment being installed.

All design documents and all tests shall be documented and signed by a person meeting the minimum qualification noted in this section.

((~~These qualifications shall not be required where demonstration of adequate skills and experience satisfactory to the fire code official is provided~~.))

510.5.3 Acceptance test procedure and system certification. When an emergency responder radio coverage system is required, and upon completion of installation, the building *owner* shall have the radio system tested to ensure that two-way coverage on each floor of the building is ((~~a minimum or 90 percent~~))in accordance with Section 510.4.1. The test procedure shall be conducted as follows:

1. Talk-back testing from a site to the Silicon Valley Regional Interoperability Authority (SVRIA) P25 Phase 2 700 MHz Digital Trunked Radio System shall use Sunnyvale Department of Public Safety radio(s) on the designated control channel (Channel 2) and may be witnessed by a representative of the Sunnyvale Department of Public Safety.

((~~1.~~))2. Each floor of the building shall be divided into a grid of 20 approximately equal test areas.

((~~2.~~))3. The test shall be conducted using a calibrated portable radio of the latest brand and model used by the agency talking through the agency's radio communications system.

~~3. Failure of a maximum of two nonadjacent test areas shall not result in failure of the test.~~

4. In the event that three of the test areas on a floor fail the talk back test, in order to be more statistically accurate, the floor shall be permitted to be divided into 40 equal test areas. ~~Failure of a maximum of four nonadjacent test areas shall not result in failure of the test.~~ If the system fails the 90% coverage requirement for the 40-area test, the emergency responder radio system shall be altered to meet the 90 percent coverage requirement.

Exception: Critical areas shall be provided with 99 percent floor area coverage.

5. A test location approximately in the center of each test area shall be selected for the test, with the radio enabled to verify two-way communications to and from the outside of the building through the ((~~public agency's radio communication system~~)) Silicon Valley Regional Interoperability Authority (SVRIA) P25 Phase 2 700 MHz Digital Trunked Radio System. Once the test location has been selected that location shall represent the entire test area. Failure in the selected test location shall be considered failure of that test area. ~~Additional test locations shall not be permitted~~

6. The test for emergency responder radio coverage will be considered passed when 90% of the test locations on each floor are able to pass two-way communications to and from the outside of the building.

Exception: Critical areas shall be provided with 99 percent floor area radio coverage.

7.((~~6.~~)) The gain values/output levels of all amplifiers shall be measured and the test measurement results shall be kept on file with the building *owner* so that the measurements can be verified during annual tests. In the event that the measurement results become lost, the building owner shall be required to rerun the acceptance test to reestablish the gain values.

8.((~~7.~~)) As part of the installation a spectrum analyzer or other suitable test equipment shall be utilized to ensure spurious oscillations are not being generated by the subject signal booster. This test shall be conducted at time of installation and subsequent annual inspections.

9. Prior to issuance of the building Certificate of Occupancy, the building owner or owner's representative shall provide the Sunnyvale Department of Public Safety with a certification letter stating that the emergency responder radio coverage system has been installed and tested in accordance with Sections 510.4 and 510.5, and that the system is complete and fully functional.

A system acceptance test report shall be submitted to the *fire code official*, maintained on the premises and be made available to the public safety department upon request. The report shall verify compliance with Section 510.5.4, and include the emergency responder radio coverage system equipment data sheets, diagram showing device locations and wiring schematic, and a copy of the electrical permit and system certification letter.

510.5.4 FCC Compliance. The emergency responder radio coverage system installation and components shall also comply with all applicable federal regulations, including, but not limited to, FCC 47 CFR Part 90.219.

510.5.5 Location of equipment. For buildings without a *fire command center* the communications control equipment and portable handsets shall be located inside the building near the fire alarm control panel, or other *approved* location.

510.5.6 Signage. Buildings equipped with an emergency responder radio coverage system shall be identified by an *approved* sign located above or near the building Knox Box stating: "This building is equipped with an Emergency Responder Radio Coverage System".

510.6 Maintenance. The emergency responder radio coverage system shall be maintained operational at all times in accordance with Sections 510.6.1 through 510.6.((3))5.

510.6.1 Testing and proof of compliance. The emergency responder radio coverage system shall be inspected and tested annually or whenever structural changes occur including additions or remodels that could materially change the original field performance tests. Individuals conducting the tests shall meet the minimum qualifications in accordance with Section 510.5.2 and shall be an *approved* third party, independent of the system designer and installer. Testing shall consist of the following:

1. In-building coverage test as described in Section 510.5.3.
2. Signal boosters shall be tested to ensure that the gain/output level is the same as it was upon initial installation and acceptance.
3. Backup batteries and power supplies shall be tested under load of a period of one hour to verify that they will properly operate during an actual power outage. If within the 1-hour test period the battery exhibits symptoms of failure, the test shall be extended for additional 1-hour periods until the integrity of the battery can be determined.
4. All other active components shall be checked to verify operation within the manufacturer's specifications.
5. At the conclusion of the testing, a report, which shall verify compliance with Sections 510.5.3 and 510.6 shall be submitted to the *fire code official* and a copy maintained on the premises and made available to Public Safety Department personnel upon request.

510.6.2 Additional frequencies. The building *owner* shall modify or expand the emergency responder radio coverage system at their expense in the event frequency changes are required by the FCC or additional frequencies are made available by the FCC. Prior approval of a public safety radio coverage system on previous frequencies does not exempt this section.

510.6.3 Field testing. ((~~Agency~~)) Sunnyvale Department of Public Safety personnel shall have the right to enter onto the property at any reasonable time to conduct field testing to verify the required level of radio coverage.

510.6.4 Qualifications of testing personnel. All tests shall be documented and signed by a person in possession of a current FCC General Radiotelephone Operator license, or a current technician certification issued by a nationally recognized organization, school or a certificate issued by the manufacturer of the equipment being installed.

510.6.5 Continuing operation/supervision. The occurrence of any fault in an emergency responder radio coverage system where the system function is decreased shall result in the transmission of a supervisory signal to a supervisory service. Systems that are out-of-service for more than 8 hours require notification to the *fire code official.*

510.7 Sunnyvale Radio Frequencies for Testing. The following frequencies and donor site coordinates shall be used in the City of Sunnyvale.

700/800 MHz Frequencies (current):

Channel	Up link	Down link
1	802.45625	772.45625
2*	**802.30625**	**772.30625**
3	802.15625	772.15625
4	801.85625	771.85625
5	801.40625	771.40625
6	800.08125	770.08125
7	tbd	tbd
8	tbd	tbd
9	tbd	tbd
10	tbd	tbd
11	tbd	tbd
12	tbd	tbd

700/800 MHz Frequencies (future)

Channel	Up link	Down link
13	tbd	tbd
14	tbd	tbd
15	tbd	tbd
16	tbd	tbd
17	tbd	tbd
18	tbd	tbd
19	tbd	tbd
20	tbd	tbd
21	tbd	tbd
22	tbd	tbd
23	tbd	tbd
24	tbd	tbd

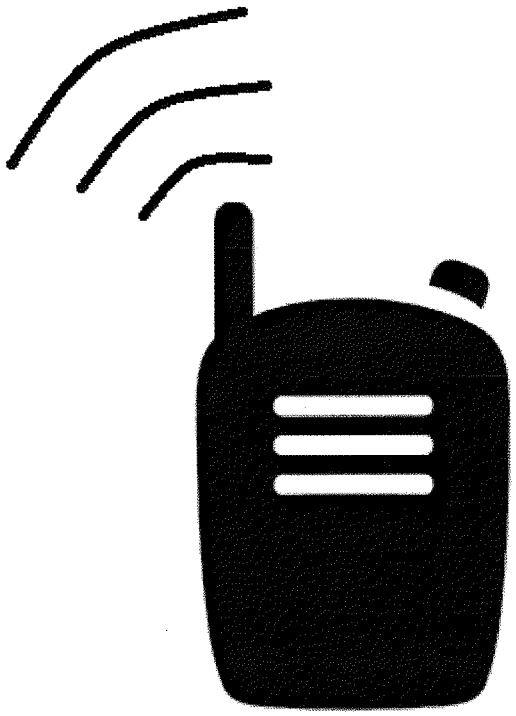
***Control Channel**

Donor site coordinates:

37-22-13.4	N	122-02-23.9	W	City of Sunnyvale
37-22-05.8	N	121-57-29.6	W	City of Santa Clara
37-23-43.9	N	122-04-54.1	W	City of Mountain View
37-17-15.146	N	121-51-56.931	W	Carol Dr. (County Comm Center)
37-17-19.5	N	121-56-7	W	Pruneyard

Design Details for Building Signage Required in Section 510.5.6:

6" x 8" Sign
½" Lettering
2" x 4" Graphic
Red Background with
White Letters and Graphic



Radio System Installed

Sunnyvale Department of Public Safety

Request for Benchmark or Acceptance Testing
Emergency Responder Radio Coverage System

☐ Benchmark Test (*Existing radio signal strength – no system)*
☐ Acceptance Test *(New Construction, Tenant Improvement, first time)*
☐ Annual Acceptance Test

Requestor:

Owner: _____

_____

_____

_____

_____ Phone

_____ Email

Approved 3rd Party Test Organization:

_____

_____

_____

_____ Phone

_____ Email

Requested Date/Time: _____ **Duration:** _____ **hours**

Building Address: _____

_____

_____

_____

Building Description: _____

_____

Attachments:

☐ Verification of Compliant Installation

☐ Statement of Operation prior to Inspection

Or

☐ Record of Inspection, Testing, and Maintenance

Note: All tests must be performed by qualified individuals meeting SMC 16.52 Section 510.5.2 using Sunnyvale DPS provided radios on the Sunnyvale DPS dedicated test channel. Tests must include all critical areas and a grid test in accordance with SMC 16.52 Section 510.4.1. Prior to submittal to DPS, all test results must be validated by a 3rd party testing organization that has been preapproved by the fire code official.

Benchmark and Acceptance Test Procedure – Emergency Responder Radio Coverage

Purpose

The Sunnyvale Department of Public Safety (AHJ) is providing this Acceptance Test Procedure to the Owner/Developer/Contractor (Owner) to define the criteria for scheduling and performing benchmark testing as well as initial and annual Acceptance Tests required to operate an Emergency Responder Radio Coverage System and maintain a renewable radio system permit in this jurisdiction.

Scheduling and Coordination

Acceptance testing will utilize active channels (DPS Control Channel 2) in the Emergency Responder Radio System. The Owner will provide a minimum ten (10) day advance notice prior to the requested test dates. All testing is subject to postponement or cancellation in the event of an emergency.

Owner will send requests to:

Sunnyvale Department of Public Safety
Attn: Fire Prevention Unit
505 W. Olive Ave., Suite 150
Sunnyvale, CA 94088-3707
Email: FirePrevention@Sunnyvale.ca.gov
Fax: 408-730-7214

Requests will include the building address, size of building, anticipated test duration, and contact information of the Owner personnel. The Owner will identify the test organization contracted to perform the tests and the preapproved 3rd party test organization that will validate the test results.

Criteria

The Owner must complete and provide a copy of the following documents signed by the Fire Prevention Inspector when requesting final Acceptance Testing from the AHJ. New and existing buildings with an in-building radio system being tested for the first time must include copies of the:

- ☐ Verification of Compliant Installation
- ☐ Statement of Operation prior to Inspection

On an annual basis or as modifications to the structure or use of the structure are completed, the Owner must request Reacceptance Testing and provide a copy of the current Record of Inspection, Testing, and Maintenance, certifying recent completion of manufacturer recommended tests and inspections.
The Benchmark Test Records and As-Built/Record documentation must be available on-site for review by the AHJ at all times.

Test Procedure

Acceptance testing will utilize the following procedure or as directed by the AHJ.

1. Owner will confirm test dates and time with the AHJ 24 hours prior to the scheduled test date.
2. Upon request, and based upon availability, the AHJ is able to loan two Department radios to the testing agency
3. Owner/Test Organization will arrive on-site at the designated time to commence testing.

4. Owner will notify AHJ Dispatch Supervisor at **(408) 730-7181** just prior to the starting and immediately after completing Acceptance Testing. The Owner will provide the Dispatch Supervisor and on-site contact should an emergency situation require suspension of testing activities or use of the Radio System.
5. The AHJ Dispatch Supervisor will confirm the radio channel to utilize and will start down-link transmissions from the designated donor radio site. The selected radio will transmit at a preset interval to allow measurement of the RF signal within the building.
6. Downlink and Uplink measurements will be made with the amplification system in an active condition and operating on back-up power.
7. On-Site Acceptance Testing may be witnessed by the AHJ and will include measurements around the perimeter of the building, on the roof-top, general floor area and critical areas designated by the AHJ.
    a. The general floor area will be broken into grids, not to exceed 128Ksq/ft.. Each grid will consist of 20 cells that equally divide the general floor space.
    b. Critical areas will include Exits, Stairwells, Elevator Lobbies, Electrical Closets, Sprinkler/Valve locations, emergency control rooms, and other locations designated by the AHJ as critical.
    c. Signal Level measurements will document RF levels during a 30 sec (min) interval in each test location.
8. The Emergency Responder Radio Coverage System must deliver a minimum signal level of -95dBm in the downlink and uplink paths in 90% of the general floor area and in 99% of the critical areas designated by the AHJ. No two adjacent cells, in the general floor area, can fail.
9. Signal Level measurements will be made with a Spectrum Analyzer or an Automated Test Platform.
    a. Downlink signals are generated by the radio site. Measurements are made inside the building by the 3rd Party Test Organization to document radio coverage.
    b. Uplink signals are generated by a portable radio transmitting from various locations inside the building. Measurements are made by the 3rd Party Test Organization at the output of the amplifier or at the Donor radio site to verify gain settings and path losses.
    (Note: the amplifier provides a constant output power (EIRP) if the signals received from within the building are within the range of the gain setting. Since the portable radios transmit at a higher level than the signals emanating from the DAS it is intuitive that the uplink EIRP will be constant and so will the signal level received at the Donor site (baring path anomalies, interference and poor delay). Issues with delay or interference would be identified through DAQ evaluation.
    c. Failure of Signal Level testing requires that the Owner correct deficiencies and re-schedule Acceptance Testing.
10. All locations must have a Delivered Audio Quality (DAQ) level of 3.4 or better. The AHJ and 3rd Party Test Organization will evaluate and grade the audio quality of transmissions generated from the radio site and received inside the building.
    a. The AHJ will utilize his portable radio to generate transmissions from inside the building. The AHJ Dispatcher will monitor DAQ levels in the Uplink direction and report to the on-site test team over the radio channel when the audio quality is out of tolerance or if interference or improper radio operation is detected.
    b. The DAQ level of transmissions generated by the Radio Site in the Downlink direction will be evaluated by the 3rd Party Test Organization and by the on-site AHJ using his portable radio.
    c. The AHJ may request the 3rd Party Test Organization to make recordings of the radio transmissions in areas of the building that exhibit poor audio or signal quality issues.
    d. Failure of DAQ tests require that the Owner correct deficiencies and re-schedule and resubmit documentation for Acceptance Testing.
11. After completion of Signal Level Measurements and evaluation of Audio Quality, the AHJ will schedule a fire crew or inspector to survey the building and verify fireground and dispatch radio operation. Failure of the operational check will require that the Owner correct deficiencies and re-schedule Acceptance Testing.

Documentation

The Owner will provide a copy of the Acceptance Test Report prepared by the 3rd Party Test Organization prior to being issued a Renewable Permit to operate the Radio Enhancement System.
The test report must indicate if an Enhancement System is installed in the building and identify the Donor Site, ERP of the amplifier, and the Antenna Gain. The test report must include floor plans and identify the location of the measurements. The RF power levels documented in the test report must be generated directly by the test instrument or include screen shots of the instrument display.
The test report must be available in the on-site Documentation Cabinet. Electronic or online access to documentation is acceptable. Electronic Documentation must be in .PDF format or viewable through a standard Internet Browser. Documentation must be available for inspection by the AHJ at any time.

Renewable Permit

The AHJ will provide the Owner a Renewable Permit after successful completion of Annual Acceptance Testing. The permit allows the Owner to operate a Emergency Responder Radio Coverage inside the building on the FCC license issued to the AHJ.
The Renewable Permit does not relieve the Owner from his obligation to ensure adequate indoor radio coverage for Emergency Responders in accordance with State and Local Fire Codes and regulations. The Owner is responsible for maintenance, repair and modification of the enhancement system as required to ensure operation 24 hours per day, 7 days per week.
The AHJ may temporarily or permanently revoke the permit for the violation of FCC rules and regulations governing the spectrum and equipment or in the event the enhancement system causes interference to the public safety radio system or to other licensed radio users.

References

California Fire Code – 2013, Title 24, Part 9, Section 510;
NFPA 72 – 2013, Chapter 7, 10, 14, and 24
City of Sunnyvale Municipal Code 16.52